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— with international search report  
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(54) Title: METHOD OF INDUCING AN ENHANCED IMMUNE RESPONSE AGAINST HIV

(57) Abstract: An efficient means of inducing an immune response against human immunodeficiency virus ("HIV") utilizing specific prime-boost regimes is disclosed. The specific prime-boost regimes employ a heterologous prime-boost protocol wherein recombinant adenoviral and poxvirus vectors comprising exogenous genetic material encoding a common HIV antigen are administered in that order. Vaccines administered into living vertebrate tissue in accordance with the disclosed regimes, preferably a mammalian host such as a human or a non-human mammal of commercial or domestic veterinary importance, express the HIV-1 antigen (e.g., Gag), inducing a cellular immune response which specifically recognizes HIV-1. It is believed that the disclosed prime/boost regime will offer a prophylactic advantage to previously uninfected individuals and/or provide a therapeutic effect by reducing viral load levels within an infected individual, thus prolonging the asymptomatic phase of HIV-1 infection.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/07511

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : A61K 39/21

US CL : 424/184.1, 199.1, 204.1, 208.1

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 424/184.1, 199.1, 204.1, 208.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Continuation Sheet**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SHIVER, J. et al., Replication-incompetent adenoviral vector elicits effective anti-immunodeficiency-virus immunity. NATURE. 17 January 2002, Vol. 415, pages 331-335, see Table 1, Figures 1 and 2, abstract, and page 335, column 1, top half.	1- 29
A	MORRAL, N. et al., Administration of helper-dependent adenoviral vectors and sequential delivery of different vector serotype for long-term liver-directed gene transfer in baboons. Proceedings of the National Academy of Sciences. 1999, Vol. 96, No. 22, pages 12816- 12821.	1-29
A	YOSHIDA, T. et al., Activation of HIV-1-specific immune responses to an HIV-1 vaccine constructed from a replication-defective adenovirus vector using various combinations of immunization protocols. Clinical & Experimental Immunology. June 2001, Vol. 124, pages 445 - 452.	



Further documents are listed in the continuation of Box C.



See patent family annex.

**\* Special categories of cited documents:**

"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

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**INTERNATIONAL SEARCH REPORT**

PCT/US03/07511

**Continuation of B. FIELDS SEARCHED Item 3:**

**STN/MEDLINE**

HIV, vaccine, vaccinia, MVA, pox, prime, boost